

***Euphorbia audissoui* Marx sp. nov.**
**– a new succulent Euphorbia species from
the Western Cape Province, South Africa**

By Gerhard Marx

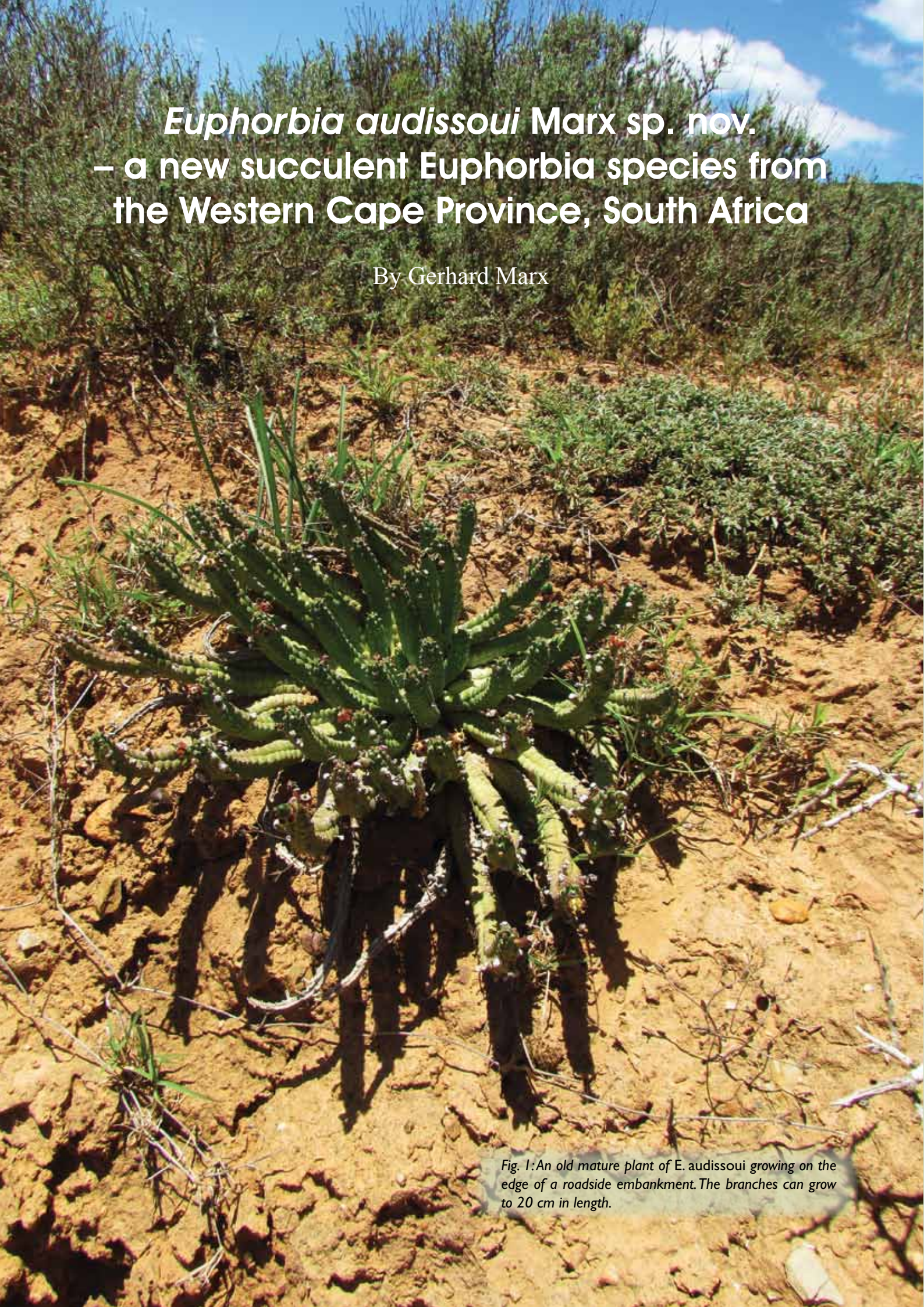


Fig. 1: An old mature plant of *E. audissoui* growing on the edge of a roadside embankment. The branches can grow to 20 cm in length.

A new succulent species of *Euphorbia* (Euphorbiaceae – *Euphorbia* subgenus *Athymalus* Neck. ex Rchb. section *Anthacanthae* Lem. subsection *Medusae* (Haw.) Pax & K.Hoffm.) from the Western Cape Province, South Africa, is formally described. It is named in honour of Jean-André Audissou who was the first person to find it in the wild and recognize it to be a new species.

Discovery

It is difficult to believe that unnamed species of succulents can still be hiding in the area of South Africa that has been botanically explored for over 200 years and during which time embarrassingly large areas of natural vegetation have been destroyed by agricultural activities. And yet, these relatively small unploughed pieces of habitat still contain such a wealth of succulent species that the south-western Cape region remains a favourite area to visit for succulents-loving tourists. Furthermore and astonishing as it may seem, the area still seems to be hiding new and unnamed plant species.

During 2007 such a new discovery was made by the French succulent enthusiast Jean-André Audissou. In a small area to the east of Albertinia he encountered a medusoid *Euphorbia* growing on the roadside that he could not identify and suspected to be new. During a visit to my residence he showed me pictures of the plant



Fig. 2: A group of *E. audissoui* in habitat. Occasionally the top part of the main stem can be pushed above ground, as in the case of the plant in the foreground.

and I too had to embarrassingly admit that I could not place it under any known name.

As it so often happens, very soon afterwards the same species was also encountered by my neighbour and friend Vincent de Vries who was somewhat taken aback by my lack of surprise when he showed me his photographs of the new species. Isn't it strange that for so many dozens of decades something remains undiscovered and the moment it is found by someone,



Fig. 3: The general habitat of *Euphorbia audissoui*. A gentle north-west facing slope sparsely covered with grass, karoid scrub and many *Aloe ferox* Mill.



Fig. 4: Detail of the branches of *E. audissoui*. Note the fleshy persistent inflorescence peduncles along the upper parts of the branches..

another person may make the same discovery within months or weeks? Morphic field theorists will smile and nod their heads.



Fig. 5: A closer view at the flowering branches of *E. audissoui*. The inflorescence in the centre of the photo shows the cyme-like flower structure with robust primary peduncle bearing two cyathia on secondary peduncles. Towards the upper right hand corner of the picture the more general solitary cyathia on single peduncles borne directly from the axils of the tubercles can be seen.

At first glance the new *Euphorbia* species is casually reminiscent of *E. inermis* Mill. and allies from the Eastern Cape Province as well as *Euphorbia colliculina* A.C.White, R.A.Dyer & B.Sloane from the Little Karoo. In fact, it looks almost identical to some populations of *E. huttonae* N.E.Br. (previously *E. inermis* var. *huttonae* (N.E.Br.) A.C.White, R.A.Dyer & B.Sloane) in terms of general appearance and size.

One of the reasons why it was recently decided to consider *E. huttonae* a good species instead of being a variety of *E. inermis* (Bruyns 2012) was based upon the fact that in *E. huttonae* the rootstock does not develop into a series of swollen, fusiform roots below the stem, but tapers gradually off and eventually divides into a few thin roots. Another feature that places *E. huttonae* even closer to *E. audissoui* Marx sp. nov. in appearance is the presence of persistent peduncles on the branches. These robust persistent flower peduncles remain alive and fleshy like undeveloped secondary branches along the upper half of the branches.

However, the flower differences between *E. audissoui* and *E. huttonae* are radical and blatantly obvious being bright yellow in *E. huttonae* and dark maroon in *E. audissoui*. The tubercles on the branches of *E. huttonae* are arranged in less obvious longitudinal rows of up to nine or ten, while they remain consistently in five rows in *E. audissoui*. As a further addition there is a drastic geographic separation with *E. audissoui* occurring more than 400 km away from the nearest *E. huttonae*.

Euphorbia colliculina from the Oudtshoorn area is also rather similar to *E. audissoui* and of comparable size and shape but also with numerous floral and a few other morphological differences. The involucre glands of *E. colliculina* are light to dark green in colour, elliptic-oblong in shape, lack marginal processes and spread horizontally. The branches lack the fleshy persistent peduncles and the tubercles on the branches are smaller and more numerous and not arranged into five longitudinal rows as in *E. audissoui*.

Euphorbia audissoui seems to occur rather isolated in an area much less richly endowed with *Euphorbia* species than the *Euphorbia*-rich Eastern Cape. There are no known *Euphorbia* species that can be considered to be closely related to *E. audissoui* in the Albertinia area. The much smaller *E. pugniformis* Boiss. (= *E. procumbens* Mill.) can be found very near but the relationship is distant with numerous flower and body shape and size differences.

A somewhat closer lookalike but very superficially so is *E. muirii* N.E.Br. which grows along the beach in the Hartenbos and Still Bay areas and it was also reported



Fig. 6: The top view of the cyathium of *E. audissoui*, photographed through a microscope lens. The glands bend downward, hiding the finger-like processes along the outer margin from view in the photo.

to occur in the Albertinia area. The latter reports are most probably older sightings of *E. audissoui* which were superficially misinterpreted as *E. muirii*. The latter misunderstandings possibly explain the fact that the new species remained “undetected” and unnamed for so long. *E. muirii* belongs in the *E. caput-medusae* and *E. marlothiana* group and the differences between it and *E. audissoui* are so numerous and obvious that a detailed listing here would be unnecessary. In brief, *E. muirii* is characterised by its thin, scraggly and rebranching procumbent branches, often produced below ground level from the main stem. The most distinctive feature of *E. muirii* is its showy flowers with large spreading glands with prominent yellowish-white finger-like processes.

E. audissoui is currently known from two localities a few kilometres apart and west of the Gouritz river to the east of Albertinia. At the time of discovery, both known localities were located on private farmland but the areas are now included in the ever-expanding Garden Route Game Reserve. The plant measurements and pictures in habitat had to be taken during watchful awareness of two cheetahs living higher up the slope and some Cape Buffalo in the nearby vicinity.

Description

Euphorbia audissoui Marx sp. nov.

Holotype: South Africa, Western Cape Province, 3421 BA (Albertinia); J.G. Marx 798 (GRA). (Precise locality data and associated documentation to holotype not quoted here.)



Fig. 7: *E. audissoui* cyathium, side view. Photo taken through a microscope lens showing cyathium and peduncle. Rule for scale on the right show millimetre markings.

Plant a spineless dwarf succulent with 12-16 cm thick sub-cylindric main stem tapering gradually and continuously into a tap root penetrating 50 cm or more into the soil. Numerous densely crowded radiating branches arise from the flattened top and apex of the main stem, leaving only a very small or sometimes no branchless central area at all. **Branches** distinctly

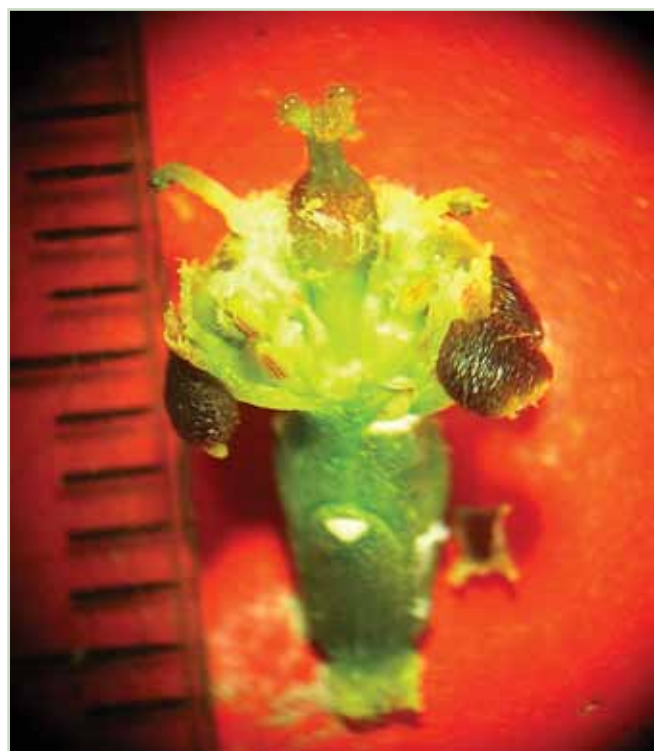


Fig. 8: The side view of the cyathium of *E. audissoui* with involucre opened to expose the pedicellate ovary.

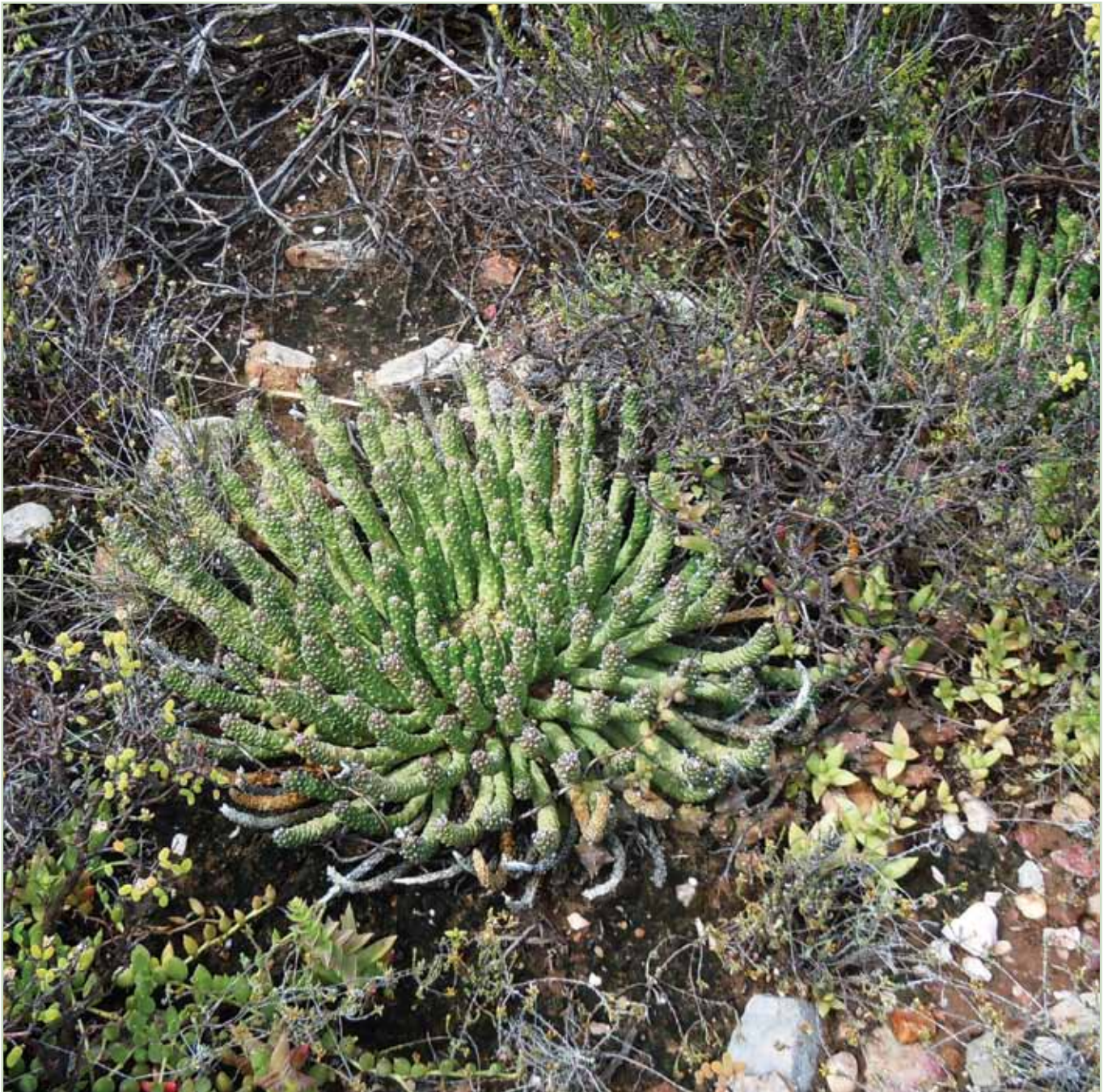


Fig. 9: *Euphorbia colliculina* growing on the northern outskirts of Oudtshoorn in the Little Karoo. Plants are reminiscent superficially of *E. audissouii* but often a central branchless opening is present and branches are not five-angled.

5-angled consisting of 5 longitudinal rows of tessellately arranged 6-sided and slightly prominent tubercles subtly spiralling and narrowing towards the tips, up to 20 cm long and to 8-12 mm thick. Irregularly arranged robust persistent primary flower peduncles remain like suppressed secondary branches along the upper half of the branches. Each tubercle bears a prominent white semi-rounded leaf-scar at the raised apex. **Leaves** 3 mm long and 2 mm wide, rudimentary, fleshy, ovate, concave, soon deciduous, present only on a few tubercles at the tips of branches. **Inflorescence** axillary from near the apex of the branches. **Cyathia** produced either singly on a solitary peduncle arising from the axils of the

tubercles towards the tips of the branches or cyme-like in pairs on robust persistent peduncles to 6 mm long and 4 mm thick; cyathia peduncles about 6 mm long, erect, stout, glabrous, bearing 3-5 bracts; primary cyme peduncles mostly persistent after fruit-bearing, remaining green and fleshy like small suppressed secondary branches. **Bracts** quickly deciduous, scale-like, minute, ciliate. **Involucre** cup-shaped, ca. 3 mm deep and 4 mm wide excluding glands, glabrous, pale green; **glands** 5 in number, 2.5 mm wide and to 2 mm broad excluding processes, deflexed downward at 45° angle, glabrous, pitted, slightly convex, suborbicular from above with 3-5 inward-curving finger-like processes along outer

margin, dark maroon in colour with processes pale yellowish-white and to 1 mm length. **Lobes** 5, to 2 mm wide, rounded, irregularly and lacinate toothed, ciliate, pale yellowish green occasionally with red flecking. **Male flowers** far exerted with filaments angled outwards, **pedicels** hairy, 2-3 mm long, **filaments** glabrous, white, 1.5-2.5 mm long, **anther thecae** green with reddish margins, pollen deep yellow. **Bracteoles** hairy, cylindrical, tapering, to 3 mm long, white. **Female flower** pedicellate, pedicel to 2 mm long; ovary ovoid, sparsely covered with hairs on lower half, styles united for half their length in a short column, united part 1 mm long, the free portion spreading-ascending, channelled down to the apex but with entire tips. **Fruit capsule** 3-lobed subglobose, 5-6 mm high and 6 mm wide, with few scattered hairs, shiny light green with some darker green mottling between lobes and also along slightly raised vertical keel-like ridges central to each lobe. **Seed** turbinate, indistinctly 4-angled, minutely rugose, to 3.5 mm high and 3 mm at widest point, very pale sandy brown in colour, occasionally with very subtle dark irregular mottling.

Acknowledgements

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Fig. 11: *Euphorbia huttonae* in habitat on the banks of the Fish River near Hunts Drift. The angled and tubercled branches with persistent flower peduncles are somewhat reminiscent of *E. audissoui*.



Fig. 10: The flowers of *Euphorbia colliculina*, showing the bright yellow (sometimes lime green) cyathia. (Photo: V. de Vries)

References

- N. E. BROWN (1915): Euphorbieae. In W. T. THISELTON-DYER (ed.): *Flora Capensis*, 5(2): 306-334
- P. V. BRUYNS (2012): Nomenclature and typification of southern African species of Euphorbia. *Bothalia* 42(2): 217-245
- A. C. WHITE, R. A. DYER & B. L. SLOANE (1941): *The Succulent Euphorbieae*, Vol. 1. Pasadena, Calif., Abbey Garden Press.

Author's contact:

Gerhard Marx
marx.gerhard@gmail.com



Fig. 12: Detail of the flowers of the Hunts Drift form of *Euphorbia huttonae*.